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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/792,271	03/04/2004	Martinus Agnes Willem Cuijpers	081468-0308590	4234

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EXAMINER	
NGUYEN, HANH N	

ART UNIT	PAPER NUMBER
2834	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/792,271	CUIJPERS, MARTINUS AGNES WILLEM	
	Examiner	Art Unit	
	HANH N. NGUYEN	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *RCE filed 1/25/08*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4,5,7-20 and 24-30* is/are pending in the application.

4a) Of the above claim(s) *17,18,24 and 25* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,5,7-16,19,20 and 26-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on *16 March 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Remarks

1. In view of amendments, the Examiner withdraws the rejection under 35 USC 102(b) to independent claims 1 and 19. However, the claims are not in a condition for allowance in view of new ground of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 4, 9-16, 19, 20, 26-28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamoto et al (US 2002/0018195) in view of Hazelton (US 6,144,119).

Regarding claim 1, Iwamoto et al. disclose a system for carrying and moving an object (5 in Fig. 4B) in a plane, comprising: an object carrier (38 in Fig. 3A and 3B); a first and a second linear actuator (top and bottom actuator associated with top and bottom stator 25 in Fig. 4A) configured to support said object carrier (by means of bearings 35 surround guide bar 29 in Fig .4B) and move said object carrier in a first direction (X direction in Fig. 4), said first and second linear actuators extending in parallel along said first direction (X direction), said first and second linear actuators being electromagnetic linear actuators comprising: a magnetic structure (top and bottom magnet 27), and a coil structure (paragraph 0061, lines 4-5), wherein the coil structure

and the magnetic structure are positioned relative to each other and separated by an air bearing (bearings 35 surround guide bar 29 and line 9 of paragraph 0061) configured to support said object carrier during motion at a first position along said first direction, the first position being on one end of whichever of the magnetic structure (by means bearings 29 that surround bar 29) or coil structure is connected to the object carrier, and at a second position displaced from the first position along said first direction, the second position being on the opposite end of whichever of the magnetic structure or coil structure is connected to the object carrier, wherein the first and second positions and whichever of the magnetic structure or coil structure is connected to the object carrier are substantially in a same plane (guide bar 29 is movable in X direction in a plane parallel with base 4); and a third and a fourth linear actuator (left and right actuator associated with top and bottom stator 24 in Fig. 4A) configured to move said object carrier in a second direction (Y direction), said third and fourth linear actuators extending in parallel along said second direction (Y direction), wherein both the coil structure and the magnetic structure of the first and second linear actuators are moveable with respect to each other or both a coil structure and a magnetic structure of the third and fourth linear actuators are moveable with respect to each other (guide bars 28 and 29 which carry permanent magnet are movable relative to stator 24 and 25), the coil structure or the magnetic structure of the respective pair of coil structure and magnetic structure of the respective linear actuator configured as a balance mass to receive reaction forces arising from the movement of the other of the coil structure or the magnetic structure (the system is symmetrical as shown in Fig. 4A). Iwamoto et al.

fail to show the air bearings being attached to the coil structure or the magnetic structure.

However, Hazelton discloses a linear electric motor wherein air bearings are being attached to the coil structure or the magnetic structure (Fig. 2 and Col. 7, lines 32-37) for the purpose of providing a precision and energy efficiency motor.

Since Iwamoto et al. and Hazelton are in the same field of endeavor, the purpose disclosed by Hazelton would have been recognized in the pertinent art of Iwamoto et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Iwamoto et al. by attaching the air bearings directly to the coil structure or the magnetic structure as taught by Hazelton for the purpose of providing a precision and energy efficiency motor.

Regarding claim 2, Iwamoto et al. disclose a system wherein said third and fourth linear actuators are adapted to support said first and second linear actuators (by means of guide bar 28, slider 38 and bearings 34, 35).

Regarding claim 4, Iwamoto et al. disclose a system wherein said third and fourth linear actuators each comprise an air bearing (34) to support said first and second linear actuators.

Regarding claim 9, Iwamoto et al. disclose a system wherein said object carrier (38 in Fig. 4B) is positioned relative to said first and second linear actuators (25) such that a vertical line through a center of gravity of said object carrier is located between said first and second linear actuators (when X direction is viewed as vertical direction).

Regarding claim 10, Iwamoto et al. disclose a system wherein said first and second linear actuators (25) are positioned relative to said third and fourth linear actuators (24) such that a common center of gravity of said first and second linear actuators is positioned between said third and fourth linear actuators.

Regarding claim 11, Iwamoto et al. disclose a system wherein said first and second linear actuators (25) are substantially symmetrically positioned with respect to the center of gravity of said object carrier (38).

Regarding claim 12, Iwamoto et al. disclose a system wherein said third and fourth linear actuators (24) are substantially symmetrically positioned with respect to the common center of gravity of the first and second linear actuators (25).

Regarding claim 13, Iwamoto et al. disclose a system wherein said first and second linear actuators (25) are positioned at opposite ends of the object carrier (38).

Regarding claim 14, Iwamoto et al. disclose a system wherein said third and fourth linear actuators (24) are positioned at opposite ends of said first and second linear actuators (38).

Regarding claim 15, Iwamoto et al. disclose a system wherein said second direction (Y) is perpendicular to said first direction (X).

Regarding claim 16, Iwamoto et al. disclose a system further comprising a control system (paragraph 0038) configured to control said first and second linear actuators.

Regarding claims 19, 20, 26-28 and 30, it is noted that all limitations of the method claims have been fulfilled by Iwamoto et al. and Hazelton as in claims 1, 2, 4, 9, and 10.

3. Claims 5, 7, 8 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamoto et al. in view of Hazelton and further in view of Chitayat (US 5,519,266).

Regarding claims 5 and 7, Iwamoto et al. and Hazelton teach that the relative positioning of the coil structure and the magnetic structure of the four linear actuators is configured such that the magnetic poles is positioned opposing the teeth, the coil structure and the magnetic structure being separated by an air bearing, but it does not teach the specifics of the components of the linear actuators.

However, Chitayat teaches linear actuators comprising: a magnetic structure (Fig. 3, #54) having a row of alternating magnetic poles on an outer surface thereof, said row being oriented in said first direction; and a coil structure (Fig. 3, #45) having an iron core (Fig. 3, #44) with a number of teeth in a row orientated in said first direction and having a number of coils wound around a respective number of said teeth for the purpose of increasing power of the actuator (Col. 2, lines 37-40).

Since Iwamoto et al., Hazelton and Chitayat are in the same field of endeavor, the purpose disclosed by Chitayat would have been recognized in the pertinent art of Iwamoto et al. and Hazelton.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the linear actuators of Iwamoto et al. and Hazelton in view of the linear actuator as taught by Chitayat for the purpose of increasing power of the actuator.

Regarding claim 8, Iwamoto et al. disclose a system wherein said air bearing (35 at top of base 4) for separating the coil structure and the magnetic structure is adapted to support said first and second linear actuators.

Regarding claim 29, it is noted that all limitations of the method claims have been fulfilled by Iwamoto et al., Hazelton and Chitayat as in claim 7.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (571) 272-2031. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner 's supervisor, Darren Schuberg, can be reached on (571) 272-2044. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and (571) 273-8300 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1000.

HNN

March 19, 2008

/Nguyen N Hanh/

Examiner, Art Unit 2834